



DOD (Dean Wagner)

Operational

Command and Control in the Information Age

By MILAN N. VEGO

A major tenet of command and control is centralized direction and decentralized execution. But there has been steady movement in the last decade toward increased centralization on all levels. This trend should be arrested and the German-style task-oriented command and control from top to bottom adopted. Otherwise the Armed Forces

could find themselves resembling the former Soviet military and paying a heavy price in the quest for absolute certainty and control.

Centralization

Authority is concentrated in a single commander and headquarters under centralized (order-oriented) command and control. One actor determines objectives and directs their accomplishment. Centralization ensures unity of effort through unity of command, facilitates decisionmaking, offers effective use of forces and assets, eliminates uncertainty, and maximizes

Milan N. Vego teaches in the Joint Military Operations Department at the Naval War College and is the author of *Naval Strategy and Operations in Narrow Seas*.

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 2004		2. REPORT TYPE		3. DATES COVERED 00-00-2004 to 00-00-2004	
4. TITLE AND SUBTITLE Operational Command and Control in the Information Age				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) National Defense University, Institute for National Strategic Studies, 260 5th Avenue SW Fort Lesley J. McNair, Washington, DC, 20319				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 8	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

control. But subordinate commanders do not have much latitude in decisions and suffer from low morale and motivation. Under centralized command and control, detailed orders can persuade tactical leaders against taking advantage of changing circumstances.

The Soviets used centralized command and control during World War II by issuing binding orders to field commanders. The result was com-

manders who would not consolidate and exploit combat success because they could not act without orders. Moreover, American and British forces relied extensively on directive orders in

1944, which explains their almost six-month advance from Normandy to the German border, despite superiority in men and matériel.

The more political the objective, the greater the need for centralized command and control. The lack of common operational concepts and doctrine requires more centralization on all levels. Additionally, poorly educated and trained subordinates can be controlled only by detailed orders. Centralization is also essential when leaders will not accept errors by their subordinates, especially in crises that might lead to hostilities. During the Cold War, national command authorities on both sides controlled the actions of their commanders. Centralization is suitable when situations such as fixed defense evolve slowly. It is also suited to the unique limitations of peace operations which, in turn, can severely influence freedom of action on the ground.

The Trend

The most serious current problem in the Armed Forces is the trend toward overcentralized decisionmaking on the operational and strategic levels. Centralized command and control may not preclude the defeat of a capable enemy, but it extorts a price. For example, in the initial phase of the German invasion of Russia in 1941, Joseph Stalin and his military advisors tried to run the war by themselves with catastrophic consequences. The Soviet high command made all the strategic decisions. Subordinates were not allowed to exercise their initiative. Stalin personally ordered ill-conceived counteroffensives and forbade withdrawals, resulting in the encirclement of hundreds of thousands of men who were destroyed by fast-advancing enemy armor. Yet despite monopolizing decisionmaking, the high command had little effect on the outcome.

The German army demonstrated the application of task-oriented command and control and the impact of being abandoned by its strategic leadership. Its successes in 1939–41 resulted from the freedom of action that Adolph Hitler and the supreme command gave operational commanders. Army commanders were issued instructions and not detailed orders. Moreover, the Fuehrer did not unduly interfere in operations during the Polish campaign. These practices eventually gave way to more intrusive orders after the start of the invasion of Russia. In the first major German defeat at the gates of Moscow, Hitler took command, turning the army general staff into a de facto personal staff as he had the supreme command.

Hitler centralized policy and strategy and also made operational decisions. He increasingly bypassed the supreme command and army group commands. Task-oriented command and control was abandoned and he issued detailed orders down to mid-level echelons, which allowed for no interpretation. Hitler directed group commanders that a certain city must be held or that a corps or division must hold its occupied position. His experiences as a soldier during World War I formed the basis of his decisions. Like Stalin, he rarely allowed a withdrawal from untenable positions, leading to large losses on the eastern front in 1942–45.

Today operational commanders often bypass immediate subordinate commanders and issue direct orders to tactical commanders in the field, as Allied Force and Enduring Force illustrated. This circumstance prevailed because of the inability or unwillingness of operational commanders to delegate authority. In general, leaders bypass subordinates because they distrust their competence. A narrow tactical perspective is another reason for micromanagement despite lessons of the past, which indicate that such practices are invariably detrimental to an organization in combat.

Overcentralized command and control undermines morale and encourages an unwillingness or inability on the part of subordinates to act independently and take responsibility for their actions. Among other concerns, eliminating independent action leaves no reliable way to gauge promotion potential of junior and mid-level leaders.

Advances in communications allow senior leaders to observe events in near real time from thousands of miles away. This promotes a false impression that remote headquarters can perceive the situation better than tactical commanders on the scene. Consequently, not only must tactical commanders report to operational commanders, but the latter often issue orders to the tactical level. Intermediate commanders are bypassed and relegated to being information administrators as

overcentralized command and control undermines morale and encourages an unwillingness to act independently



U.S. Marine Corps (Mauricio Campino)

Intelligence briefing,
Iraqi Freedom.

more senior leaders immerse themselves in details. Networking supposedly promises decentralization, affording greater initiative to subordinates. Evidence suggests the opposite: theater commanders increasingly use information technology to make decisions that would normally be the province of tactical commanders.

Real-Time Knowledge

During Enduring Freedom, senior leaders in the United States not only observed but also second-guessed subordinate commanders. Commander, Central Command, reportedly exercised direct command in real time over forces in Afghanistan from headquarters in Florida. He could also monitor images of the battlefield from unmanned aerial vehicles that were retransmitted

by orbiting satellites. His headquarters was networked via satellite with headquarters in Kuwait and Uzbekistan.

Experience proves that theater commanders have less need for real-time knowledge than subordinate commanders. Also, at theater level, the volume of the real-time information available makes it more difficult to focus on operational instead of tactical aspects of the situation. During Millennium Challenge, tactical units received orders from senior levels, sometimes without the knowledge of intermediate commanders. Computer networks can apparently turn the traditional chain of command into a web of command

Press conference on
Operation Anaconda.



DOD (R.D. Ward)

that is deemed highly desirable. Yet it is an illusion to think that senior leaders can grasp tactical intricacies better than their subordinates. Nor can they take advantage of their fleeting opportunities on the ground.

During World War II, Admiral Chester Nimitz, the theater commander in the Pacific, and Admiral Raymond Spruance, the fleet commander, realized their commanders on the scene were best suited to make tactical decisions. Nimitz reportedly left commanders alone because looking over their shoulders inhibited them. As long as commanders had the responsibility, they had the freedom to do what they thought best. At the same time, both leaders made recommendations by radio if local commanders were overlooking opportunities. Nimitz and Admiral Joseph King, the Chief of Naval Operations, allowed freedom of action but were not slow to intervene or relieve a commander.

Technology is a two-edged sword, especially when developments lend themselves to ever greater centralization and, in extreme cases, to battlefield micromanagement. Some 130 years ago, Field Marshal Helmuth von Moltke warned that the most unfortunate senior commander is one who suffers under close supervision and must continually give an account of his plans and intent. This supervision may be exercised through a delegate of the highest authority at his headquarters or by a telegraph wire attached to his back. In such cases, all independence, rapid decisions, and audacious risk—without which no war can be won—cease.

Delegating Authority

Operational commanders who specify everything for subordinates will get lost in myriad details and lose their perspective. They will also risk losing the trust of their subordinates and undermine the basis of their decisions. Senior army

commanders in Vietnam used helicopters as airborne command posts to direct commanders on the ground. Technology enabled senior leaders to make purely tactical decisions. During the Kosovo conflict, General Wesley Clark, USA, the Supreme Allied Commander Europe (SACEUR), interfered with the responsibilities of the joint force air component commander at Allied Force South. The personal relationship between these leaders was accordingly troubled. Clark reportedly selected fixed targets, stipulated the means to attack them, and aborted attacks on targets in progress.

Regional commanders seem unwilling to delegate authority through intermediate levels of command. In the Persian Gulf War, Commander, Central Command (CENTCOM), was also the commander of the Kuwaiti theater of operations as well as de facto land component commander, with his forward headquarters at Riyadh. In the conflict against Serbia in 1999, SACEUR ran day-to-day operations rather than delegating responsibility to his subordinate, the commander of Allied Forces Southern Europe. He also got bogged down in making tactical decisions instead of devoting himself to strategy and policy as the senior NATO military officer.

In Enduring Freedom, Allied Forces Central Command ran the war from some 8,000 miles away. The distance between headquarters and subordinates on the ground still matters even in the information age. Greater distance means less ability to make timely decisions. Distance also affects the performance of respective staffs, largely because of different battle rhythms caused by different time zones.

The human dimension of leadership is largely ignored by apostles of information warfare. Senior commanders should be close to battle where subordinates can see them. This can enhance morale and build trust. Hence theater-strategic commanders could establish a subordinate theater of operations command or combined joint task force prior to hostilities. This command would be directly accountable to the theater-strategic commanders and responsible for day-to-day planning and execution of joint and combined operations or campaigns. Such a solution in Kosovo and the combat phase of Enduring Freedom would have relieved the theater-strategic commander of direct involvement in tactical matters. At the same time, intermediate commanders could improve their control over forces by their proximity to the fight. Moreover, theater-strategic commanders could devote time and energy to strategic and operational affairs in their areas of responsibility.

EOD team, Iraqi Freedom.



1st Combat Camera Squadron (Billy Johnson)

targets are often selected first, then the search starts for objectives

Targeteering

Another result of the increased centralized command and control is that the planning and execution focus is almost exclusively on targets to be degraded, neutralized, or destroyed, not the objectives and tasks to be accomplished. Targets are often selected first, then the search starts for objectives. This violates the foundation on which the regressive planning process

rests. The ultimate operational or strategic objective is determined first for a major operation or campaign. Afterward, intermediate major tactical or operational objectives must be resolved as well.

The main reason for the excessive focus on the targeting process among U.S. planners is the uncritical acceptance of the flawed five-ring theory. The most serious error is belief that each ring consists of a single or many centers of gravity. In practical terms, these centers are targets to be attacked. It is wrong to suppose these centers are vulnerabilities. With this belief, the logic of what constitutes a center of gravity is turned on its head. It is directly related to one's objective. In analyzing enemy critical factors, a center of gravity is invariably found among its tangible and intangible strengths whose serious degradation, neutralization, or destruction would prevent it from accomplishing its objective, not critical weaknesses

or vulnerabilities. Today, many parties from the Joint Staff in Washington to tactical commanders and agencies in the field are involved in target development, selection, and approval.

Allied Force and Enduring Freedom are the latest examples of the targeteering approach to warfare. In the former operation, SACEUR pressured planners to produce a list of 5,000 targets. After being informed there were not that many in Serbia, he reduced the number to 2,000. Many targets eventually attacked were unrelated to military capabilities. The targeting process involved numerous planners at the Pentagon and elsewhere in the United States as well as Great Britain, Supreme Headquarters Allied Powers Europe, U.S. European Command, and the combined air operations center in Italy. And worse, selection and approval were time-consuming, politicized, and random, which resulted in ad hoc targeting.

Each strike in Enduring Freedom was approved by CENTCOM headquarters in Tampa. Military lawyers vetted targets on all echelons from the Pentagon and unified command level to the combined air operations center in Saudi Arabia and carrier battle groups and ground forces in Afghanistan. The Joint Staff selected targets while Navy and Air Force planners abroad, chiefly in



Briefing in Bagram,
Afghanistan.

55th Signal Company (Ronald Mitchell)

Saudi Arabia, determined how strikes would be carried out, prepared daily air tasking orders, and established aircraft packages for given missions. However, in contrast to prevalent practices, target selection—creating a joint prioritized list for both ground and air targets—was made by CENTCOM for four months until Anaconda in March 2002. Often intelligence and advances in shortening the time to carry out strikes were degraded by delays in obtaining approval from senior commanders. In addition, many attacks on time-sensitive targets failed because controllers from the Central Intelligence Agency or Special Forces had to get approval from Tampa.

One solution is putting target selection at the end of the planning process, not the front. Objectives and tasks should dominate planning. Targeting should be decentralized with higher levels of command less involved in tactical and technical details. Control on the operational and strategic levels should be exercised through appropriate guidance and rules of engagement. The result would be faster decisions on target selection and attack. Specifically, the process should reside with service or functional component and joint task force commanders. In issuing strategic guidance, the national, alliance, or coalition authorities should specify desired strategic endstates, objectives, and limitations on which categories and individual targets can be attacked. Afterward, theater commanders should specify detailed targeting limitations in their operational guidance.

Estimates of the situation, when conducted by commanders and their staffs, would ensure that the focus is firmly on objectives and tasks, not targets. Hence objectives and corresponding centers of gravity should be determined first. Then the main tasks and component (partial) tasks can be determined for each objective. Subsequently, a target list can be developed and targets

selected for component tasks. The focus must be on targets whose destruction or neutralization would cause a ripple effect and lead to accomplishing the assigned task.

Focusing on targeting makes it harder to determine whether and when an objective has been reached. It also wastes time and resources. As Kosovo demonstrated, emphasizing targets instead of objectives and tasks can lead to attrition warfare on the operational and strategic levels. This outcome may not be critical in operations like Enduring Freedom, where victory is assured, but could have serious consequences when an enemy is stronger. Moreover, targetteering directs almost all the attention of the operational commanders and their staffs to the tactics of weapons and platforms instead of the operational and strategic situation.

Task Orientation

The Armed Forces could meet the challenges of information technology by reinforcing the tenets of centralized control and decentralized execution found in joint doctrine. Decentralization is often regarded as synonymous with *Auftragstaktik*, the concept of task-oriented command and control. Its prerequisites are understanding the nature of war, a common operational and tactical outlook, common doctrine and vocabulary, a high degree of professional education and training, and the highest degree of leadership by senior commanders and their subordinates.

Decentralization of large formations during the Wars of German Unification (1864–71) resulted from the increased range and lethality of weapons, railroads, and telegraphs. The effect was a larger theater in which armies were deployed and maneuvered. Commanders were unable to fully observe or control their forces. Another effect was the intensity of combat and need to disperse forces over the theater. Moltke recognized that the flow of information would never be fast enough to allow control by commanders at headquarters in the rear, even with the telegraph. He thus fostered independence of thought, believing that officers must act on their own at times. They should not wait for orders when no orders can be given. Their efforts are most productive when following the intent of the senior commander.

Task-oriented command and control is based on the conviction that subordinate levels of command act more quickly than higher levels in changing situations because of their proximity. On the level of execution, knowledge of the various aspects of the situation are far greater than on senior levels. Hence the assumption is that decisions are generally sounder on the tactical level than tactical decisions made on the operational or higher echelons. Independence of action also can

Planning room aboard
USS Harry S. Truman,
Iraqi Freedom.



Fleet Combat Camera, Atlantic (Michael W. Pendergrass)

the limitations of task-oriented command and control are found in mistrust between senior and subordinate leaders

motivate subordinates. The Germans believed a favorable situation could not be exploited if commanders waited for orders. Senior level commanders and low ranking soldiers recognized that omission and inactivity were worse than resorting to the incorrect expedient. Commanders on all levels had latitude for initiative and prompt action, on their own authority if necessary.

Inaction was considered criminal, but deeds were to be performed in consonance with objectives set by senior commanders, who were obliged to intervene when subordinates endangered the mission.

The application of task orientation for command and control is particularly suitable when objectives are predominantly military, combat is intensive, and changes of situation are rapid and often drastic. It is less applicable in scenarios requiring immediate action or where an error can lead to severe political or strategic consequences. The scope of the subordinate's independent action must be reduced when the senior command authority must coordinate the actions of adjacent or friendly forces.

Among other things, the limitations of task-oriented command and control are found in personal rivalries, unhealthy self-esteem, character

weakness, insecurity, and mistrust between senior and subordinate leaders. These factors lead to suspicion or disobedience. Both the incompetence of subordinates and the interference of senior commanders in purely tactical matters can significantly reduce the scope of task-oriented command and control.

Rapid technological advances are pulling the conduct of war in contradictory directions. Senior commanders can observe events in near real time and almost instantaneously control them from their headquarters, as seen in *Allied Force* and *Enduring Freedom*. Yet this does not justify unnecessarily usurping authority on the tactical level. Today commanders can intervene faster but should do so only when subordinates endanger the mission.

Despite technological advances, terrain and distances matter, as witnessed in Afghanistan and Iraq. The nature of war today is essentially the same as it was for Clausewitz and Moltke. Proponents of information warfare ignore the wisdom of Clausewitz by trying to limit warfare to fixed values and physical quantities. Wars will continue to be characterized by friction, uncertainty, and chaos. It is a mistake to believe that advances in communications will make it otherwise.



Aviano air base,
Allied Force.

U.S. Air Force (Delish Castillo)

Perhaps the chief argument for German-style, task-oriented command and control is that friction and the fog of war are best mastered by a high degree of independence. Detailed tactical picture technology should be used to monitor unfolding events by senior officers who intervene only when necessary. Morale and motivation remain enormously valuable. Psychological factors cannot be dismissed, as some proponents of information warfare may believe. Vietnam revealed the folly of overestimating technology and equating leadership with management. Measurable or quantifiable methodologies have replaced human analysis, individual initiative, and independence of execution. Yet the focus of command and control on any level should be the human element, not technology that supports it. Mastering technology does not make leaders successful.

Out of Focus

The true nature of war is often misunderstood or ignored. The aphorisms of Sun Tzu are taken literally while the dicta of Clausewitz are considered irrelevant in the information age. The importance of technological innovations is recognized, while human and psychological factors of command and control are neglected. Senior leaders are apparently unwilling to delegate authority and establish intermediate levels of command or use existing echelons. In addition to interfering in the purely tactical decisions and actions of subordinate commanders, there is a growing trend to bypass tactical commanders and deal with subordinates or individual soldiers on the ground. Recent successes over weak, technologically backward, and largely passive enemies seem to have convinced many observers that information technology reinforces the need to centralize

functions on the operational and strategic levels of command. Yet success in war demands sound balance between centralized and decentralized command and control. Experience has shown that when fighting highly capable and resourceful enemies, excessive centralization has never been an answer if the victory must be won decisively with the fewest friendly losses.

While proponents of information warfare claim that their goal is furthering decentralized decisionmaking on all levels, the trend is in the opposite direction. Tactical commanders should not be passive observers and mere transmitters of orders. As freedom of action is diminished, they cannot exercise initiative to achieve the intent of senior leaders. In addition, officers who are unaccustomed to acting independently may fail to take prudent risks as senior commanders.

The emphasis on information technology and targeteering is troubling for several reasons. Targeteers reduce the art of war to a process of collecting information on specific categories and individual targets that are attacked with little regard to their relationship to objectives and tasks. Selection is unwieldy, time-consuming, and ineffective. Excessive focus on targeting means that the perspective of operational commanders and their staffs is becoming tactical. A targeteering approach carried to its logical conclusion can only result in a war of attrition on the operational and strategic levels when fighting against a relatively stronger and more competent enemy.

The problems of centralized command and control could be solved by adopting the tenets of task-oriented command and control. This means accepting that war is not a science but an art. Friction and the fog of war are inherent in combat. Advanced information technologies can reduce uncertainty but not eliminate it. The more complex the technological innovation, the higher the friction. Technology is only a means to an end, not an end in itself. Hence operational command and control must focus on those elements of combat power, leadership in particular, that will enhance the ability to fight and win decisively with the fewest losses. Education and training are critical to applying task-oriented command and control on all levels of war. **JFQ**